METHODS FOR ASSESSING RACIAL/ETHNIC DISPROPORTIONALITY IN SPECIAL EDUCATION: A TECHNICAL ASSISTANCE GUIDE

INTRODUCTION

Racial/ethnic disproportionality in special education has been an important topic of concern for many years. In 1997, the reauthorization of the Individuals with Disabilities Education Act (IDEA) set forth provisions requiring states to address significant disproportionality where it occurs. States are instructed to collect and examine data to assess whether any racial/ethnic groups are disproportionately represented in special education disability and educational environment categories.

Many different methods of calculating disproportionality exist. Each of these methods represents a different way of reporting the same data, and each answers a different question about racial/ethnic representation in special education.

This technical assistance guide focuses on two of the more common methods: *composition* and *risk*. We also discuss the *risk ratio* as a means for comparing risk. This technical assistance guide summarizes how to apply each of these methods to state- and district-level data when assessing racial/ethnic disproportionality.

For each method, Westat summarizes the question it answers and provides at least two examples of its use. We also include a brief discussion of how to interpret the methods, along with the strengths and limitations of each. The technical assistance guide concludes with a short discussion of some issues states should consider when evaluating racial/ethnic disproportionality.

All of the examples that follow use data presented in Tables 1 and 2, which consist of IDEA data and total student enrollment data by race/ethnicity.[1] It should be noted, however, that the data in these tables are fictitious and do not represent data from an actual state. Furthermore, to be consistent throughout our examples, we only present and use data for one disability category and one educational environment category. States, however, should examine the other disability and educational environment categories when assessing disproportionality at both the state- and district-levels.

Although our fictitious state has a limited number of districts to simplify the examples, these methods easily translate to states with larger numbers of districts or student enrollments. They can also be used with individual school-level data.

---

[1] An OSEP/Westat disproportionality task force recommended that, when calculating disproportionality, states use enrollment data rather than population data because these data are available at the school and district level. Population data, on the other hand, are not readily available for school districts. Because OSEP recommends that states examine disproportionality at the district level, states should use a denominator that is comparable for all levels of analysis. See the Appendix for more information about the disproportionality task force.

Table 1.   Child Count and Total Student Enrollment Data for State A by Race/Ethnicity[2]

	American Indian/ Alaska Native	Asian/Pacific Islander	Black (not Hispanic)	Hispanic	White (not Hispanic)	*TOTALS*
STATE A – MENTAL RETARDATION (MR)						
District 1	0	3	402	40	303	*748*
District 2	15	35	312	16	691	*1,069*
District 3	0	0	189	0	0	*189*
District 4	2	11	388	10	108	*519*
District 5	11	18	316	121	732	*1,198*
District 6	7	26	182	179	682	*1,076*
District 7	0	0	199	69	97	*365*
District 8	5	27	493	77	56	*658*
District 9	7	23	281	145	706	*1,162*
District 10	0	18	348	123	560	*1,049*
TOTALS	*47*	*161*	*3,110*	*780*	*3,935*	*8,033*
STATE A – TOTAL STUDENT ENROLLMENT						
District 1	342	1,403	9,898	7,564	30,421	*49,628*
District 2	191	1,698	5,832	11,563	21,438	*40,722*
District 3	25	154	4,697	500	386	*5,762*
District 4	265	1,756	11,586	5,688	22,541	*41,836*
District 5	311	1,213	6,224	6,002	34,897	*48,647*
District 6	225	2,204	7,845	3,256	40,158	*53,688*
District 7	198	875	10,786	10,488	13,669	*36,016*
District 8	246	1,657	5,645	7,235	31,796	*46,579*
District 9	143	1,875	6,002	8,013	28,977	*45,010*
District 10	45	1,099	5,138	9,363	14,592	*30,237*
TOTALS	*1,991*	*13,934*	*73,653*	*69,672*	*238,875*	*398,125*

---

[2]   The data used in this table are fictitious and not from an actual state. They are meant to guide the discussion of disproportionality methods in the examples that follow. Furthermore, we only present data from one disability category.   States should assess disproportionality in the other disability categories and in the educational environment categories

Table 2. Educational Environment and Total Child Count Data for State A by Race/Ethnicity[3]

	American Indian/ Alaska Native	Asian/Pacific Islander	Black (not Hispanic)	Hispanic	White (not Hispanic)	*TOTALS*
STATE A – OUTSIDE GENERAL CLASSROOM >60% OF SCHOOL DAY						
District 1	2	17	99	89	346	*553*
District 2	2	30	145	145	370	*692*
District 3	0	0	499	15	41	*555*
District 4	3	21	139	31	201	*395*
District 5	7	9	108	93	205	*422*
District 6	5	27	133	132	323	*620*
District 7	6	8	115	124	234	*487*
District 8	0	18	101	98	257	*474*
District 9	6	37	103	136	387	*669*
District 10	0	1	1	229	1	*232*
TOTALS	*31*	*168*	*1,443*	*1,092*	*2,365*	*5,099*
STATE A – TOTAL CHILD COUNT (ALL DISABILITIES)						
District 1	10	150	1,031	695	2,160	*4,046*
District 2	42	164	991	544	2,518	*4,259*
District 3	2	15	1,698	75	131	*1,921*
District 4	15	189	1,765	678	2,263	*4,910*
District 5	32	155	902	617	2,746	*4,452*
District 6	24	169	998	425	1,895	*3,511*
District 7	26	137	1,040	645	2,121	*3,969*
District 8	17	156	752	778	2,520	*4,223*
District 9	22	171	872	590	4,528	*6,183*
District 10	0	2	3	742	4	*751*
TOTALS	*190*	*1,308*	*10,052*	*5,789*	*20,886*	*38,225*

---

[3] The data used in this table are fictitious and not from an actual state. They are meant to guide the discussion of disproportionality methods in the examples that follow. Furthermore, we only present data from one educational environment category. States should assess disproportionality in the other educational environment categories and in the disability categories.

COMPOSITION

Composition answers the question, "What percentage of students receiving special education and related services either for a particular disability or in a particular educational environment are from a specific racial/ethnic group?"

The equation for composition is:

Composition = (Number of students from racial/ethnic group in disability or educational environment category / Number of students in disability or educational environment category) * 100

Example #1

Question: In State A, what percentage of students receiving special education and related services for MR are Black?

1. Find the number of Black students in the MR category. Using Table 1, State A has 3,110 Black students in the MR category.

2. Find the total number of students with MR. Using Table 1, State A has a total of 8,033 students with MR.

3. Divide the number of Black students in the MR category by the total number of students in the MR category and then multiply by 100 to convert the result to a percent:

> Composition = (Black students in MR category / All students in MR category) * 100
>
> = (3,110 / 8,033) * 100
>
> = 38.7%.

Answer: In State A, 38.7% of students receiving special education and related services for MR are Black.

Example #2

Question: In State A, what percentage of students receiving special education and related services outside the regular classroom >60% of the school day are Hispanic?

1. Find the number of Hispanic students in the >60% educational environment category. Using Table 2, State A has 1,092 Hispanic students in the >60% educational environment category.

2. Find the total number of students in the >60% educational environment category. Using Table 2, State A has a total of 5,099 students in the >60% educational environment category.

3. Divide the number of Hispanic students in the >60% educational environment category by the total number of students in the >60% educational environment category and then multiply by 100 to convert the result to a percent:

> Composition = (Hispanic students in >60% category / All students in >60% category) * 100
>
> = (1,092 / 5,099) * 100
>
> = 21.4%.

Answer: In State A, 21.4% of students receiving special education and related services outside the regular classroom >60% of the school day are Hispanic.

Interpretation

To begin to address the question of whether the racial/ethnic composition of a disability or educational environment category is disproportionate, compare the racial/ethnic composition of the disability or educational environment category to the racial/ethnic composition of a comparison group. Typically, the racial/ethnic composition of either the disability category or educational environment category is compared to the racial/ethnic composition of the total student enrollment.

To compare a racial/ethnic group's percentage of the disability or educational environment category to that group's percentage of the enrollment, calculate the relative difference in composition. The relative difference in composition is the size of the difference between the racial/ethnic group's percentage of the disability or educational environment category and the group's percentage of the enrollment represented as a proportion of the group's percentage of the enrollment.

A positive relative difference in composition indicates the racial/ethnic group composes a larger percentage of the disability or educational environment category than it does the enrollment. A negative relative difference in composition indicates the racial/ethnic group composes a smaller percentage of the disability or educational environment category than it does the enrollment.

- In Example #1, the percentage of the MR category that is Black can be compared to the percentage of the student enrollment that is Black.

    1. Calculate the enrollment composition. Divide the number of enrolled Black students in State A by the total number of enrolled students in State A and then multiply by 100 to convert the result to a percent. Using Table 1:

    > Enrollment composition = (Enrolled Black students / All enrolled students) * 100
    >
    > = (73,653 / 398,125) * 100
    >
    > = 18.5%.

    2. Calculate the relative difference in composition. Using the *unrounded* percentages, divide the difference between the disability composition and the enrollment composition by the enrollment composition and then multiply by 100 to convert the result to a percent.

    > Relative difference = [(Disability composition – Enrollment composition) / Enrollment composition] *100
    >
    > = [(38.712599% – 18.499969%) / 18.499969%] * 100
    >
    > = 109.3%.

Thus, in State A, Black students compose 38.7% of the MR category, but only 18.5% of enrolled students. The percentage of the MR category that is Black is 109.3% larger than the percentage of the student enrollment that is Black.

- In Example #2, the percentage of the >60% educational environment category that is Hispanic can be compared to the percentage of the student enrollment that is Hispanic.

1. Calculate the enrollment composition. Divide the number of enrolled Hispanic students in State A by the total number of enrolled students in State A and then multiply by 100 to convert the result to a percent. Using Table 2:

> Enrollment composition = (Enrolled Hispanic students / All enrolled students) * 100
> = (69,672 / 398,125) * 100
> = 17.5%.

2. Calculate the relative difference in composition. Using the *unrounded* percentages, divide the difference between the educational environment composition and the enrollment composition by the enrollment composition then multiply by 100 to convert the result to a percent:

> Relative difference = [(Environment composition – Enrollment composition) / Enrollment composition] * 100
> = [(21.415964% – 17.500031%) / 17.500031%] * 100
> = 22.4%.

Thus, in State A, Hispanic students compose 21.4% of the >60% educational environment category, but only 17.5% of enrolled students. The percentage of the >60% educational environment category that is Hispanic is 22.4% larger than the percentage of the student enrollment that is Hispanic.

Strengths and Limitations

Composition is useful when discussing the racial/ethnic makeup of a disability or educational environment category. Composition, however, varies directly with the racial/ethnic demographics of the state or district for which it is calculated. With composition, the size of the racial/ethnic group's percentage of the disability or educational environment category is directly related to the size of that racial/ethnic group's percentage of the total student enrollment.

For example, when one racial/ethnic group composes a large percentage of a state's or district's total enrollment, then that racial/ethnic group will also compose a large percentage of the disability or educational environment category. In other words, if a state's or district's enrollment consists mostly of White students, then White students will compose a much larger percentage of the disability or educational environment category than any other racial/ethnic group. Similarly, in states or districts with larger Black or Hispanic enrollments, Black or Hispanic students will compose a comparatively larger percentage of the disability or educational environment categories than states with smaller Black or Hispanic enrollments.

To be interpreted, therefore, the composition of the disability or educational environment category must be compared to the racial/ethnic composition of the state or district's total student enrollment, as discussed in the interpretation section above.

Caution must be used when using composition in states or districts that have extremely homogeneous racial/ethnic distributions. When a state's or district's student enrollment is composed almost entirely of one racial/ethnic group, it can become impossible to demonstrate racial/ethnic disproportionality using composition. Thus, composition should not be used under these circumstances.

RISK

(See Example #2 for how to calculate risk with educational environment data.)

Risk, when applied to a disability category, answers the question, "What percentage of students from a specific racial/ethnic group receive special education and related services for a particular disability?"

> The equation for risk is:
>
> Risk = (Number of students from racial/ethnic group in disability category / Number of enrolled students from racial/ethnic group) * 100

Example #1

Question: In State A, what percentage of Black students receive special education and related services for MR?

1. Find the number of Black students in the MR category. Using Table 1, State A has 3,110 Black students in the MR category.

2. Find the total number of enrolled Black students. Using Table 1, State A has 73,653 enrolled Black students.

3. Divide the number of Black students in the MR category by the number of enrolled Black students and then multiply by 100 to convert the result to a percent:

> Risk = (Black students in MR category / All Black students) * 100
>
>   = (3,110 / 73,653) * 100
>
>   = 4.2%.

Answer: In State A, 4.2% of Black students receive special education and related services for MR.

(Example #2 uses the data presented in Table 2.)

Risk, when applied to an educational environment category, answers the question, "What percentage of students with disabilities from a specific racial/ethnic group receive special education and related services in a particular educational environment?"

To answer this question, the risk denominator is students with disabilities rather than student enrollment. This denominator is used because only students with disabilities receive special education and related services in the educational environment categories.

The equation for risk is:

Risk = (Number of students from racial/ethnic group in educational environment category / Number of students with disabilities from racial/ethnic group) * 100

Example #2

Question: In State A, what percentage of Hispanic students with disabilities receive special education and related services outside the regular classroom >60% of the school day?

1. Find the number of Hispanic students in the >60% educational environment category. Using Table 2, State A has 1,092 Hispanic students in the >60% educational environment category.

2. Find the number of Hispanic students with disabilities. Using Table 2, State A has 5,789 Hispanic students with disabilities.

3. Divide the number of Hispanic students in the >60% educational environment category by the number of Hispanic students with disabilities and then multiply by 100 to convert the result to a percent:

> Risk = (Hispanic students in >60% category / All Hispanic students with disabilities) * 100
>
> = (1,092 / 5,789) * 100
>
> = 18.9%.

Answer: In State A, 18.9% of Hispanic students with disabilities receive special education and related services outside the regular classroom >60% of the school day.

Interpretation

To begin to address the question of whether a risk is disproportionate, compare the risk for a specific racial/ethnic group to the risk for a comparison group. The risk ratio, described in the following section, is the most appropriate method for comparing the relative size of two risks.

Strengths and Limitations

Risk is useful when discussing a racial/ethnic group's probability of receiving special education and related services either for a particular disability or in a particular educational environment. Unlike composition, risk does not vary with a state or district's underlying racial/ethnic distribution.

The risk for each racial/ethnic group, however, is directly related to overall special education identification rates. In other words, the size of a racial/ethnic group's risk for receiving special education and related services either for a particular disability or in a particular educational environment is directly related to the size of the overall risk for special education in the state or district.

Higher special education identification rates at the state or district level will produce larger risks for all racial/ethnic groups, whereas lower special education identification rates will produce smaller risks. For

example, a state or district with a high MR identification rate will have larger MR risks for all of the racial/ethnic groups than a state or district with a relatively low MR identification rate. Likewise, a state or district with high special education identification rates will have larger educational environment risks for all of the racial/ethnic groups than a state or district with low special education identification rates.

Therefore, as described in the interpretation section above, the risk for each racial/ethnic group must be compared to the risk for a comparison group. Westat recommends that states compare the risk for each racial/ethnic group to the risk for all other students combined.[4] The risk ratio, described in the next section, is the most appropriate method for comparing the relative size of two risks.

---

[4] Using "all other students" as the comparison group enables risk ratios to be calculated for all racial/ethnic groups and allows the risk ratios to be calculated in the same manner for all racial/ethnic groups. Furthermore, risk ratios can be calculated in states or districts with diverse racial/ethnic distributions, including those with homogeneous distributions and those without a clear racial/ethnic majority.

RISK RATIO

FOR CHILD COUNT DATA ONLY

(See Example #2 for how to calculate the risk ratio with educational environment data).

The risk ratio, when applied to a disability category, answers the question, "What is a specific racial/ethnic group's risk of receiving special education and related services for a particular disability as compared to the risk for all other students?"

The equation for the risk ratio is:

Risk ratio = Risk for racial/ethnic group for disability category / Risk for comparison group for disability category

---

Example #1

Question: In State A, what is the risk for Black students receiving special education and related services for MR as compared to the risk for all other students?

- First, calculate the numerator of the risk ratio. In this example, the numerator is the MR risk for Black students:

    1. Find the number of Black students in the MR category. Using Table 1, State A has 3,110 Black students in the MR category.

    2. Find the total number of enrolled Black students. Using Table 1, State A has 73,653 enrolled Black students.

    3. Calculate the risk by dividing the number of Black students in the MR category by the number of enrolled Black students and then multiply by 100 to convert the result to a percent (do not round the result):

    > Risk = (Black students in MR category / All Black students) * 100
    >
    > = (3,110 / 73,653) * 100
    >
    > = 4.222503%.

- Next, calculate the denominator of the risk ratio. In this example, the denominator is the MR risk for all other students:

    4. Calculate the number of all other students in the MR category. In this example, all other students are all students who are not Black. Calculate this number by adding together all of the students in the MR category who are not Black. Using Table 1:

        All other students = American Indian/Alaska Native students in MR category + Asian/Pacific Islander students in MR category + Hispanic students in MR category + White students in MR category

$$= \ 47 + 161+ 780 + 3{,}935$$
$$= \ 4{,}923.$$

5. Calculate the number of all other enrolled students. Calculate this number by adding together all of the enrolled students who are not Black. Using Table 1:

All other students = American Indian/Alaska Native enrolled students + Asian/Pacific Islander enrolled students + Hispanic enrolled students + White enrolled students
  = 1,991 + 13,934 + 69,672 + 238,875
  = 324,472.

6. Calculate the risk by dividing the number of all other students in the MR category by the number of all other enrolled students and then multiply by 100 to convert the result to a percent (do not round the result):

Risk = (All other students in MR category / All other students) * 100

  = (4,923 / 324,472) * 100

  = 1.517234%.

- Calculate the risk ratio:

7. Divide the MR risk for Black students by the MR risk for all other students:

Risk ratio = (MR risk for Black students / MR risk for all other students)

  = 4.222503% / 1.517234%

  = 2.78.

Answer: In State A, Black students are 2.78 times more likely than all other students to receive special education and related services for MR.

FOR EDUCATIONAL ENVIRONMENT DATA ONLY
(Example #2 uses the data presented in Table 2.)

The risk ratio, when applied to the an educational environment category, answers the question, "Given the risk for special education, what is a specific racial/ethnic group's risk for receiving special education and related services in a particular educational environment as compared to the risk for all other students?"

The equation for the risk ratio is:

  Risk ratio = Risk for racial/ethnic group for educational environment category / Risk for comparison group for educational environment category

---

Example #2

Question: In State A, what is the risk for Hispanic students with disabilities receiving special education and related services outside the regular classroom >60% of the school day as compared to the risk for all other students with disabilities?

- First, calculate the numerator of the risk ratio. In this example, the numerator is the >60% educational environment risk for Hispanic students:

    1. Find the number of Hispanic students in the >60% educational environment category. Using Table 2, State A has 1,092 students in the >60% educational environment category.

    2. Find the number of Hispanic students with disabilities. Using Table 2, State A has 5,789 Hispanic students with disabilities.

    3. Calculate the risk by dividing the number of Hispanic students in the >60% educational environment category by the number of Hispanic students with disabilities and then multiply by 100 to convert the result to a percent (do not round the result):

    Risk = (Hispanic students in >60% category / All Hispanic students with disabilities) * 100

    = (1,092 / 5,789) * 100

    = 18.863362%.

- Next, calculate the denominator of the risk ratio. In this example, the denominator is the >60% educational environment risk for all other students:

    4. Calculate the number of all other students in the >60% educational environment category. In this example, all other students are students who are not Hispanic. Calculate this number by adding together all of the students in the >60% educational environment category who are not Hispanic. Using Table 2:

    All other students = American Indian/Alaska Native students in >60% category + Asian/Pacific Islander students in >60% category + Black students in >60% category + White students in >60% category
    = 31 + 168 + 1,443 + 2,365
    = 4,007.

    5. Calculate the number of all other students with disabilities. Calculate this number by adding together all of the students with disabilities who are not Hispanic. Using Table 2:

    All other students = American Indian/Alaska Native students with disabilities + Asian/Pacific Islander students with disabilities + Black students with disabilities + White students with disabilities
    = 190 + 1,308 + 10,052 + 20,886
    = 32,436.

6. Calculate the risk by dividing the number of all other students in the >60% educational environment category by the number of all other students with disabilities and then multiply by 100 to convert the result to a percent (do not round the result):

> Risk = (All other students in >60% category / All other students with disabilities) * 100
>
> = (4,007 / 32,436) * 100
>
> = 12.353558%.

- Calculate the risk ratio:

7. Divide the >60% educational environment risk for Hispanic students by the >60% educational environment risk for all other students:

> Risk ratio = >60% educational environment risk for Hispanic students / >60% educational environment risk for all other students
>
> = 18.863362% / 12.353558%
>
> = 1.53.

Answer: In State A, Hispanic students with disabilities are 1.53 times more likely than all other students with disabilities to receive special education and related services outside the regular classroom >60% of the school day.

Interpretation

The risk ratio compares the relative size of two risks by dividing the risk for a specific racial/ethnic group by the risk for a comparison group. A risk ratio of 1.00 indicates no difference between the racial/ethnic group and the comparison group. In other words, the racial/ethnic group is no more likely than students from all other racial/ethnic groups to receive special education and related services either for a particular disability or in a particular educational environment. A risk ratio greater than 1.00 indicates the risk for the racial/ethnic group is greater than the risk for the comparison group, while a risk ratio less than 1.00 indicates the risk for the racial/ethnic group is less than the risk for the comparison group.

Strengths and Limitations

Unlike composition, the size of the risk ratio for a particular racial/ethnic group does not depend on that racial/ethnic group's percentage of the state or district's enrollment. Furthermore, unlike risk, the size of a racial/ethnic group's risk ratio does not depend on differences in overall special education identification rates because the risks for the racial/ethnic group and for the comparison group both come from the same state or district. We feel, therefore, that the risk ratio is the best single measure of disproportionality.

Two issues must be addressed, however, when applying risk ratios to district-level data. First, risk ratios cannot be compared across districts because the size of the risk ratio is affected by the district-level racial/ethnic demographics of the comparison group. The risk for the comparison group is jointly influenced by the racial/ethnic composition of the comparison group and the risk for each of those racial/ethnic groups. Thus, the risk for a racial/ethnic group may be the same in two districts, but the risk

ratios will differ unless the racial/ethnic demographics of the districts are identical. The weighted risk ratio, discussed in the next section, addresses this issue.

Second, having small numbers of students at the district level can be problematic when interpreting or calculating risk ratios. Risk ratios are difficult to interpret when based on small numbers of students in either the racial/ethnic group or the comparison group. Furthermore, risk ratios cannot be calculated when there are no students in the comparison group receiving special education and related services. The alternate risk ratio, discussed in the next section, describes how to calculate risk ratios in districts with small numbers of students.

APPLICATION OF RISK RATIOS TO DISRICT-LEVEL DATA

Weighted Risk Ratios: Comparing Risk Ratios Across Districts

As discussed in the risk ratio strengths and limitations section, risk ratios are not comparable across districts. The denominator of the risk ratio (i.e., the risk for all other students) is influenced by the racial/ethnic composition of the comparison group. Each racial/ethnic group contributes to the risk for the comparison group in proportion to its size relative to the entire comparison group. Therefore, a racial/ethnic group may have the same risk in two districts, but substantially different risk ratios because of variability in the district-level racial/ethnic demographic distributions.

The weighted risk ratio addresses this limitation by adjusting for district variability in the racial/ethnic composition of the comparison group. The weighted risk ratio thus allows comparison of risk ratios across districts and enables states to rank districts when deciding how to target technical assistance.

The weighted risk ratio uses the district-level risk for the racial/ethnic group for the numerator and a weighted risk for all other students for the denominator. The weighted risk for all other students uses the district-level risks for each racial/ethnic group in the comparison group, weighted according to the racial/ethnic composition of the state.

The equation for the weighted risk ratio is:

$$\text{Weighted risk ratio} = \frac{R_i}{\sum_{j \neq i} w_j R_j}$$

$$= \frac{(1 - p_i) R_i}{\sum_{j \neq i} p_j R_j}$$

Where R_i is the district-level risk for racial/ethnic group i, and p_i is the state-level proportion of students from racial/ethnic group i. R_j is the district-level risk for the j-th racial/ethnic group, and p_j is the state-level proportion of students from the j-th racial/ethnic group.

FOR CHILD COUNT DATA ONLY
(See Example #2 for how to calculate the weighted risk ratio with educational environment data.)

Example #1

Question: In District 5, what is the risk for Black students receiving special education and related services for MR as compared to the risk for all other students when the risk ratio is weighted according to the racial/ethnic demographics of State A?

- First, calculate the MR risk for each racial/ethnic group using the data for District 5 in Table 1. Do *not* convert the results to percents by multiplying by 100 and do not round the results.

1. Calculate the MR risk for Black students in District 5:

> Risk = Number of Black students in MR category / Number of enrolled Black students
>
> = 316 / 6,224
>
> = 0.050771.

2. Calculate the MR risk for American Indian/Alaska Native students in District 5:

> Risk = Number of American Indian/Alaska Native students in MR category / Number of enrolled American Indian/Alaska Native students
>
> = 11 / 311
>
> = 0.035370.

3. Calculate the MR risk for Asian/Pacific Islander students in District 5:

> Risk = Number of Asian/Pacific Islander students in MR category / Number of enrolled Asian/Pacific Islander students
>
> = 18 / 1,213
>
> = 0.014839.

4. Calculate the MR risk for Hispanic students in District 5:

> Risk = Number of Hispanic students in MR category / Number of enrolled Hispanic students
>
> = 121 / 6,002
>
> = 0.020160.

5. Calculate the MR risk for White students in District 5:

> Risk = Number of White students in MR category / Number of enrolled White students
>
> = 732 / 34,897
>
> = 0.020976.

- Next, calculate the racial/ethnic composition of the total student enrollment of State A using the data in Table 1. Do _not_ convert the results to percents by multiplying by 100 and do not round the results.

6. Calculate the proportion of students enrolled in State A who are Black:

> Composition = Enrolled Black students / All enrolled students
>
> = 73,653 / 398,125
>
> = 0.185000.

7. Calculate the proportion of students enrolled in State A who are American Indian/Alaska Native:

> Composition = Enrolled American Indian/Alaska Native students / All enrolled students
>   = 1,991 / 398,125
>   = 0.005001.

8. Calculate the proportion of students enrolled in State A who are Asian/Pacific Islander:

> Composition = Enrolled Asian/Pacific Islander students / All enrolled students
>   = 13,934 / 398,125
>   = 0.034999.

9. Calculate the proportion of students enrolled in State A who are Hispanic:

> Composition = Enrolled Hispanic students / All enrolled students
>   = 69,672 / 398,125
>   = 0.175000.

10. Calculate the proportion of students enrolled in State A who are White:

> Composition = Enrolled White students / All enrolled students
>   = 238,875 / 398,125
>   = 0.600000.

- Calculate the weighted risk ratio:

> Weighted risk ratio = [(1 − State Black composition) * District Black MR risk] / [(State American Indian/Alaska Native composition * District American Indian/Alaska Native MR risk) + (State Asian/Pacific Islander composition * District Asian/Pacific Islander MR risk) + (State Hispanic composition * District Hispanic MR risk) + (State White composition * District White MR risk)]
>
> = [(1 − 0.185001) * 0.050771] / [(0.005000 * 0.035370) + (0.034999 * 0.014839) + (0.175000 * 0.020160) + (0.600000 * 0.020976)]
>
> = 2.46.

Answer: **In District 5, Black students are 2.46 times more likely than all other students to receive special education and related services for MR when the risk ratio is weighted according to the racial/ethnic demographics of State A.**

(Example #2 uses the data presented in Table 2.)

The general equation for the weighted risk ratio remains the same when using educational environment data, but risk and composition are calculated using total child count data instead of student enrollment data.

Example #2

Question: **In District 8, what is the risk for Hispanic students with disabilities receiving special education and related services outside the regular classroom >60% of the school day as compared to the risk for all other students with disabilities when the risk ratio is weighted according to the racial/ethnic demographics of State A?**

- First, calculate the >60% educational environment risk for each racial/ethnic group using the data for District 8 in Table 2. Do *not* convert the results to percents by multiplying by 100 and do not round the results.

    1. Calculate the >60% educational environment risk for Hispanic students in District 8:

    > Risk = Number of Hispanic students in >60% category / Number of Hispanic students with disabilities
    >
    > = 98 / 778
    >
    > = 0.125964.

    2. Calculate the >60% educational environment risk for American Indian/Alaska Native students in District 8:

    > Risk = Number of American Indian/Alaska Native students in >60% category / Number of American Indian/Alaska Native students with disabilities
    >
    > = 0 / 17
    >
    > = 0.0.

    3. Calculate the >60% educational environment risk for Asian/Pacific Islander students in District 8:

    > Risk = Number of Asian/Pacific Islander students in >60% category / Number of Asian/Pacific Islander students with disabilities
    >
    > = 18 / 156
    >
    > = 0.115385.

4. Calculate the >60% educational environment risk for Black students in District 8:

> Risk = Number of Black students in >60% category / Number of Black students with disabilities
>
> = 101 / 752
>
> = 0.134309.

5. Calculate the >60% educational environment risk for White students in District 8:

> Risk = Number of White students in >60% category / Number of White students with disabilities
>
> = 257 / 2,520
>
> = 0.101984.

- Next, calculate the racial/ethnic composition of the total child count of State A using the data in Table 2. Do *not* convert the results to percents by multiplying by 100 and do not round the results.

6. Calculate the proportion of students with disabilities in State A who are Hispanic:

> Composition = Hispanic students with disabilities / All students with disabilities
>
> = 5,789 / 38,225
>
> = 0.151445.

7. Calculate the proportion of students with disabilities in State A who are American Indian/Alaska Native:

> Composition = American Indian/Alaska Native students with disabilities / All students with disabilities
>
> = 190 / 38,225
>
> = 0.004971.

8. Calculate the proportion of students with disabilities in State A who are Asian/Pacific Islander:

> Composition = Asian/Pacific Islander students with disabilities / All students with disabilities
>
> = 1,308 / 38,225
>
> = 0.034218.

9. Calculate the proportion of students with disabilities in State A who are Black:

> Composition = Black students with disabilities / All students with disabilities
> = 10,052 / 38,225
> = 0.262970.

10. Calculate the proportion of students with disabilities in State A who are White:

> Composition = White students with disabilities / All students with disabilities
> = 20,886 / 38,225
> = 0.546396.

- Calculate the weighted risk ratio:

> Weighted risk ratio = [(1 – State Hispanic composition) * District Hispanic >60% risk] / [(State American Indian/Alaska Native composition * District American Indian/Alaska Native >60% risk) + (State Asian/Pacific Islander composition * District Asian/Pacific Islander >60% risk) + (State Black composition * District Black >60% risk) + (State White composition * District White >60% risk)]
>
> = [(1 – 0.151445) * 0.125964] / [(0.004971 * 0.0) + (0.034218 * 0.115385) + (0.262970 * 0.134309) + (0.546396 * 0.101984)]
>
> = 1.13.

Answer: In District 8, Hispanic students with disabilities are 1.13 times more likely than all other students with disabilities to receive special education and related services outside the regular classroom >60% of the school day when the risk ratio is weighted according to the racial/ethnic demographics of State A.

Alternate Risk Ratios: Calculating Risk Ratios with Small Numbers of Students

Risk ratios are difficult to interpret when they are based on small numbers of students (either in the racial/ethnic group or the comparison group). When risk ratios are based on small numbers, minor variations in the number of students in either the racial/ethnic group or the comparison group can produce dramatic changes in the size of the risk ratio. Furthermore, it is impossible to calculate risk ratios if there are no students in the comparison group (i.e., the risk for the comparison group cannot be calculated) or if none of the students in the comparison group receives special education and related services either for the disability or in the educational environment (i.e., the risk for the comparison group is zero).

For these reasons, we suggest the following when calculating risk ratios at the district level:

- Do not calculate a risk ratio if there are fewer than 10 students in the racial/ethnic group of interest enrolled in the district (when examining child count data) or in the total district child count (when examining educational environment data).

21

- Calculate an *alternate risk ratio* (see equation below) if there are at least 10 students in the racial/ethnic group, but there are fewer than 10 students in the comparison group enrolled in the district (when examining child count data) or in the total district child count (when examining educational environment data), or if there are no students in the comparison group receiving special education and related services for the disability or in the educational environment (the risk for the comparison group is zero).

- Because the alternate risk ratio uses state-level data to calculate the risk for the comparison group, do not calculate the alternate risk ratio if there are fewer than 10 students in the comparison group enrolled in the <u>state</u> (when examining child count data) or in the total state child count (when examining educational environment data), or if there are no students in the comparison group receiving special education and related services for the disability or in the educational environment at the <u>state level</u>.

- When calculating the alternate risk ratio, use the *district-level* risk for the racial/ethnic group in the numerator and the *state-level* risk for the comparison group in the numerator.

> The equation for the alternate risk ratio is:
>
> Alternate risk ratio = District-level risk for racial/ethnic group for disability or educational environment category / State-level risk for comparison group for disability or educational environment category

- If you cannot calculate either a regular (weighted) risk ratio or an alternate risk ratio for a specific racial/ethnic group within a district, you should examine the number of students in that racial/ethnic group who are receiving special education and related services either for the disability or in the educational environment.

- Although the number of students may be small, if you determine that a large proportion of them are receiving special education and related services either for the disability or in the educational environment, you should examine existing policies, procedures, and practices to ensure that they comply with the requirements stated in Part B of the IDEA .

Examples #3 and #4 demonstrate how to calculate the alternate risk ratio with child count data and educational environment data, respectively.

<u>FOR CHILD COUNT DATA ONLY</u>
(See Example #3 for how to calculate the weighted risk ratio with educational environment data.)

Example #3

Question: What is the risk for Black students receiving special education and related services for MR in District 3 as compared to the risk for all other students in State A?

- In this example, District 3 has no students in the comparison group who receive special education and related services for MR. Therefore, calculate an alternative risk ratio.

- First, <u>using the data for *District 3*</u>, calculate the numerator of the risk ratio. In this example, the numerator is the district-level MR risk for Black students:

  1. Find the number of Black students in the MR category in District 3. Using Table 1, District 3 has 189 Black students in the MR category.

  2. Find the total number of Black students enrolled in District 3. Using Table 1, District 3 has 4,697 enrolled Black students.

  3. Calculate the risk by dividing the number of Black students in the MR category by the total number of Black students and then multiply by 100 to convert the result to a percent (do not round the results):

    > Risk = (Black students in MR category / All Black students) * 100
    >
    > = (189 / 4,697) * 100
    >
    > = 4.023845%.

- Next, <u>using the data for *State A*</u>, calculate the denominator of the risk ratio. In this example, because District 3 has no students in the MR category who are not Black, the denominator is the state-level MR risk for all other students:

  4. Calculate the number of all other students in the MR category in State A. In this example, all other students are all students who are not Black. Calculate this number by adding together all of the students in the MR category in State A who are not Black. Using Table 1:

    > All other students = American Indian/Alaska Native students in MR category + Asian/Pacific Islander students in MR category + Hispanic students in MR category + White students in MR category
    > = 47 + 161 + 780 + 3,935
    > = 4,923.

  5. Calculate the number of all other enrolled students in State A. Calculate this number by adding together all of the enrolled students in State A who are not Black. Using Table 1:

    > All other students = American Indian/Alaska Native enrolled students + Asian/Pacific Islander enrolled students + Hispanic enrolled students + White enrolled students
    > = 1,991 + 13,934 + 69,672 + 238,875
    > = 324,472.

  6. Calculate the risk by dividing the number of all other students in the MR category by the total number of all other students and then multiply by 100 to convert the result to a percent (do not round the results):

    > Risk = (All other students in MR category / All other students) * 100
    >
    > = (4,923 / 324,472) * 100
    >
    > = 1.517234%.

- Calculate the alternate risk ratio:

7. Divide the district-level MR risk for Black students by the state-level MR risk for all other students:

> Alternate risk ratio = District-level MR risk for Black students / State-level MR risk for all other students
>
> = 4.023845% / 1.517234%
>
> = 2.65.

Answer: In District 3, Black students are 2.65 times more likely than all other students in State A to receive special education and related services for MR.

FOR EDUCATIONAL ENVIRONMENT DATA ONLY
(Example #4 uses the data presented in Table 2.)

The general equation for the alternate risk ratio remains the same when using educational environment data, but the risk for the racial/ethnic group and the risk for the comparison group are calculated using total child count data in the risk denominator instead of student enrollment data.

Example #4

Question: What is the risk for Hispanic students with disabilities receiving special education and related services outside the regular classroom >60% of the school day in District 10 as compared to the risk for all other students with disabilities in State A?

- In this example, District 10 has fewer than 10 students with disabilities in the comparison group. Therefore, calculate an alternative risk ratio.

- First, using the data for *District 10*, calculate the numerator of the risk ratio. In this example, the numerator is the district-level >60% educational environment risk for Hispanic students:

1. Find the number of Hispanic students in the >60% educational environment category in District 10. Using Table 2, District 10 has 229 Hispanic students in the >60% educational environment category.

2. Find the total number of Hispanic students with disabilities in District 10. Using Table 2, District 10 has 742 Hispanic students with disabilities.

3. Calculate the risk by dividing the number of Hispanic students in the >60% educational environment category by the total number of Hispanic students with disabilities and then multiply by 100 to convert the result to a percent (do not round the results):

> Risk = (Hispanic students in >60% category / All Hispanic students with disabilities) * 100
>
> = (229 / 742) * 100
>
> = 30.862534%.

- Next, <u>using the data for *State A*</u>, calculate the denominator of the risk ratio. In this example, because District 10 has fewer than 10 students with disabilities who are not Hispanic, the denominator is the state-level >60% educational environment risk for all other students:

4. Calculate the number of all other students in the >60% educational environment category in State A. In this example, all other students are all students who are not Hispanic. Calculate this number by adding together all of the students in the >60% educational environment category in State A who are not Hispanic. Using Table 2:

   All other students = American Indian/Alaska Native students in >60% category + Asian/Pacific Islander students in >60% category + Black students in >60% category + White students in >60% category
   = 31 + 168 + 1,443 + 2,365
   = 4,007.

5. Calculate the number of all other students with disabilities in State A. Calculate this number by adding together all of the students with disabilities in State A who are not Hispanic. Using Table 2:

   All other students = American Indian/Alaska Native students with disabilities + Asian/Pacific Islander students with disabilities + Black students with disabilities + White students with disabilities
   = 190 + 1,308 + 10,052 + 20,886
   = 32,436.

6. Calculate the risk by dividing the number of all other students in the >60% educational environment category by the total number of all other students with disabilities and then multiply by 100 to convert the result to a percent (do not round the results):

   Risk = (All other students in >60% category / All other students with disabilities) * 100

   = (4,007 / 32,436) * 100

   = 12.353558%.

- Calculate the alternate risk ratio:

7. Divide the district-level >60% educational environment risk for Hispanic students by the state-level >60% educational environment risk for all other students:

   Alternate risk ratio = District-level >60% educational environment risk for Hispanic students / State-level >60% educational environment risk for all other students

   = 30.862534% / 12.353558%

   = 2.50.

Answer: In District 10, Hispanic students with disabilities are 2.50 times more likely than all other students in State A to receive special education and related services outside the regular classroom >60% of the school day.

CONCLUDING THOUGHTS ABOUT ASSESSING DISPROPORTIONALITY

This technical assistance guide has focused on calculating composition, risk, and the risk ratio, along with how to interpret these methods and the strengths and limitations of each. In this section, we conclude with brief discussions of both IDEA requirements and disproportionality targets.

According to Part B of the IDEA, states are required to collect and examine data to determine if significant disproportionality based on race is occurring with respect to the identification of children with disabilities and the placement of these children in particular educational settings. If a state determines that significant disproportionality exists, then the state must provide for a review and, if appropriate, revision of the policies, procedures, and practices used in the identification or placement to ensure that the policies, procedures, and practices comply with the requirements stated in Part B of the IDEA (20 USC §1418 (c) and 34 CFR §300.755).

When assessing racial/ethnic disproportionality, states should determine criteria for defining significant disproportionality and apply these criteria to all analyses. States should flag any significant disproportionality identified by the criteria for review, and as appropriate, revise policies, procedures, and practices. States should assess disproportionality at the both the state and district levels; disproportionality may be widespread at the district level even when there is no significant disproportionality at the state level.

When addressing significant disproportionality, states should <u>not</u> set targets that include numerical goals based on race/ethnicity. For example, states should not set targets stating that they will reduce risk ratios to a certain value. Nor should they set targets stating they will reduce disproportionality so the racial/ethnic composition of the disability or educational environment category is more similar to the racial/ethnic composition of the total student enrollment. Targets that include numerical goals based on race/ethnicity raise serious concerns under federal civil rights laws and the United States Constitution.

Instead of setting targets that include numerical goals based on race/ethnicity, states should set targets that focus on what will be done if significant disproportionality is identified. For example, a state could set a target stating, "The state will provide technical assistance when noncompliant policies, procedures, and practices are identified. Any noncompliant policies, procedures, and practices will be corrected as soon as possible, but in no case later than one year of identification." Or, the state could set a target stating, "The state will examine the policies, procedures, and practices in the 10 or 15 districts where disproportionality is most serious to ensure that these districts are complying with the requirements stated in Part B of the IDEA." Targets such as these do not raise concerns about civil rights violations.

RECOMMENDED REFERENCES

Artiles, A. J., Harry, B., Reschly, D. J., & Chinn, P. C. (2002). Over-identification of students of color in special education: A critical overview. *Multicultural Perspectives, 4,* 3-10.

Chinn, P. C., & Hughes, S. (1987). Representation of minority students in special education classes. *Remedial and Special Education, 8,* 41-46.

Coutinho, M. J., & Oswald, D. P. (2000). Disproportionate representation in special education: A synthesis and recommendations. *Journal of Child and Family Studies, 9*, 135-156.

Donovan, M. S., & Cross, C. T. (2002). *Minority students in special and gifted education*. Washington, DC: National Academy Press.

Heller, K. A., Holtzman, W. H., & Messick, S. (1982). *Placing children in special education: A strategy for equity.* Washington, DC: National Academy Press.

Hosp, J. L., & Reschly, D. J. (2002). Predictors of restrictiveness of placement for African-American students and Caucasian students. *Exceptional Children, 68*, 225-228.

Losen, D. J., & Orfield, G. (2002). *Racial inequity in special education*. Cambridge, MA: Harvard Education Press.

MacMillan, D. L., & Reschly, D. J. (1998). Overrepresentation of minority students: The case for greater specificity or reconsideration of the variables examined. *The Journal of Special Education, 32,* 15-24.

Skiba, R. J., Chung, C. G., Wu, T. C., Simmons, A. B., & St John, E. P. (2000). *Minority overrepresentation in Indiana's Special Education programs*. Bloomington, IN: Indiana Education Policy Center.

APPENDIX

TASK FORCE ON RACIAL/ETHNIC DISPROPORTIONALITY

Although the 1997 reauthorization of the Individuals with Disabilities Education Act (IDEA) set forth provisions requiring states to address significant disproportionality, these provisions do not provide a definition of disproportionality or specify how states should assess it. The Office of Special Education Programs (OSEP) therefore recognized a need for a disproportionality method that could be used in the Part B Annual Performance Report (APR), for data requests, and for technical assistance provided to the states by the National Center for Culturally Responsive Educational Systems (NCCRESt).

Since many approaches for assessing racial/ethnic disproportionality exist, Westat convened a task force in January 2003 to discuss methodologies for calculating disproportionality. In March 2004, Westat reconvened the task force to continue discussing issues related to assessing racial/ethnic disproportionality.

On both occasions, the task force consisted of state special education data managers, state and local directors of special education, university researchers, and representatives from advocacy groups, the National Association of State Directors of Special Education (NASDSE), NCCRESt, the National Center for Special Education Accountability Monitoring (NCSEAM), the Regional Resource Centers, OSEP, the Department of Education Office of the General Counsel, and Westat.

Some of the issues the task force has discussed include:

- Methodologies for assessing disproportionality and how to calculate each;
- The strengths and limitations of these methodologies;
- The appropriate denominator to use with these disproportionality methods (i.e., total school enrollment or population data);
- The appropriate comparison group to use with the risk ratio (i.e., all other students, White students, all students, etc.);
- The weighted risk ratio;
- Criteria for defining disproportionality at the state and district levels; and
- Disproportionality in the educational environments, including how to assess it and which educational environment categories should be examined.

Westat reviews and considers all task force discussions on racial/ethnic disproportionality and then uses this information to make recommendations to OSEP. OSEP then assesses our recommendations and makes decisions regarding how to evaluate disproportionality for the APR, data requests, and the technical assistance provided to states by NCCRESt.